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Breast Cancer in African American Women

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Abstract

Study objectives are to develop a quantitative assessment tool to describe barriers to primary and secondary prevention of breast cancer, to use this tool to establish preliminary norms in an urban, southern, African American community, and to investigate individual differences in obstacles to behaviors that impede breast cancer prevention.

This report describes Phase II research activities. A convenience sample of 155 African American women were used to determine the range of obstacles perceived to primary (eating a low fat diet, increasing intake of fruits and vegetables) and secondary (doing monthly breast self-examinations and getting timely mammograms) breast cancer risk prevention behavior. A coding system was used to systematically classify the reported barriers. Using the most frequently mentioned barriers for each behavior, a series of structured questionnaires were developed for administration in a community survey. These questionnaires are being validated in 100 African American women in relation to internal consistency or reliability; and validity in relation to dietary measures, preventive practices, and stage of behavior change. This psychometrically validated assessment instrument will be used in a community survey to determine the prevalence of these barriers in a black and white, low and medium income population in Nashville.

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Margaret R. Hargreaves Feb 16/99
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INTRODUCTION

NATURE OF THE PROBLEM

Breast cancer is a major source of morbidity and mortality in women. Black women, impoverished women, and older women are at higher risk of dying from breast cancer than white, upper income, younger women.¹⁻⁷ Elderly and disadvantaged women have been hard to reach⁸ and the decrease in survival is mainly due to late-stage diagnosis⁹⁻¹¹. Morbidity and mortality in poor and minority women may be reduced by lowering the risk factors for breast cancer and encouraging early detection, diagnosis, and treatment. Lifestyle changes will be required for the primary and secondary prevention of breast cancer.

Lack of adherence to clinical and preventive regimes is a serious problem in medicine and public health¹²⁻¹³. Adherence, defined as the extent to which an individual's behavior meets the goals of a treatment or prevention plan, has been the subject of extensive behavioral science research¹⁴⁻¹⁵. As result, a number of theoretical models have been developed, and evaluated in an effort to understand and encourage adherence to health regimes¹²⁻²⁴. The concept of barriers or obstacles to adherence, conditions that impede or block an individual's efforts to follow a treatment plan, is included in most theoretical models^{15,22}. Many empirical studies have investigated barriers to adherence using a variety of methods²⁵⁻³¹. However, there has been little systematic effort to develop and validate a general methodology for identifying, describing, assessing, and overcoming barriers to adherence. The purpose of the proposed research is to use a systematic methodology to identify, describe, measure, and characterize the barriers to primary and secondary prevention of breast cancer in African American women.

BACKGROUND OF PREVIOUS WORK

Risk Factors for Breast Cancer

Primary Prevention

Although known risk factors may explain 40% to 50% of breast cancer cases, the NCI estimates that the etiology of the remaining 50% to 60% of cases is undetermined³². Studies of potential risk factors, though voluminous, are far from conclusive. There are, however, several established risk factors and other variables that could be termed likely risk factors.

A woman's risk of breast cancer increases steadily with age. Besides age, several known risk factors are associated with breast cancer: early menarche, late age of first full-term pregnancy, late age of menopause, single marital status, and family history of breast cancer³³⁻³⁶. Additional risk factors for breast cancer include history of cancer in one breast, primary cancer in the ovary or endometrium, and exposure to ionizing radiation³³⁻³⁵.

Since age, menarche, family history, and previous history of cancer are not controllable risk factors, scientists have looked for risk factors that can be modified. The primary candidates for

modifiable risk factors are dietary fat intake, intake of fruits vegetables and fiber, alcohol consumption, and obesity³². Fat intake and the consumption of fruits, vegetables, and fiber are briefly reviewed.

Dietary fat. A significant amount of epidemiologic and experimental research has focused on the associations between fat and breast cancer risk, with a special emphasis on total dietary fat and type of fat. Data indicate that dietary fat is associated with postmenopausal but not premenopausal breast cancer.

Total fat. Epidemiologic evidence from international, migrant, and time-trend studies provides strong support for a direct association between total dietary fat and risk of breast cancer³⁸. International correlation data show a 5.5-fold increase in breast cancer incidence in countries with the highest fat intake (45% of calories as fat) compared with countries with the lowest fat intake (15 % of calories as fat)³⁹. The association of total fat intake and breast cancer risk remains even after adjustment for total energy intake. Case and cohort studies that examined the association of breast cancer risk and total fat intake have reported mixed results. For example, analysis of combined analysis of 12 case-control studies showed a strong positive association between breast cancer risk and both total fat and saturated fat consumption in postmenopausal-but not premenopausal women⁴⁰. The Nurses Health Study, a cohort study that included about 90,000 women, found no association between breast cancer incidence or mortality and total fat, saturated fat, linoleic acid, or cholesterol after either 4 years or 8 years in either premenopausal or postmenopausal women⁴¹⁻⁴². Of the four other cohort studies that investigated the relationship between total fat intake and breast cancer risk, two studies reported relative risks (RR) of 1.35 and 1.38 for highest compared with lowest quartile of total fat intake; similarly, one study that compared tertiles of fat intake reported an RR of 1.7⁴³. These three studies provide some evidence to support a positive association between fat intake and breast cancer risk. Data from the fourth study, an analysis of data from the first National Health and Nutrition Examination Survey (NHANES 1) did not support the association (RR = 0.47); however, with only 99 cases, this study had low power to detect differences⁴⁴. These results indicate that the postulated association between fat intake and breast cancer risk may be difficult to determine accurately in epidemiologic studies due to limitations in the research methods, including the difficulty of detecting a modest association. Data from these cohort studies do not rule out the possibilities that fat intake earlier in life or at substantially lower intake levels could be more strongly associated with breast cancer risk. In addition, cohort studies of populations that are relatively homogeneous in fat intake -as compared with wide international dietary fat variations - could fail to detect a dietary fat-breast cancer association. What is clear, however, is that even a modest reduction in risk of 10% could reduce the annual incidence of breast cancer in the United States by approximately 18,000⁴⁵⁻⁴⁶.

Type of fat. The type of fat consumed may also be important in breast cancer development. The degree of saturation of vegetable oils has been reported to influence breast cancer risk⁴⁷⁻⁴⁸. International comparisons indicate that polyunsaturated fats, high in omega-6 fatty acids (primarily linoleic acid), and saturated fats have a strong positive association with breast cancer⁴⁷. In countries such as Greece, however, where large quantities of olive oil-which is high in the mono-unsaturated fatty acid, oleic acid, and low in omega-6 fatty acids - are consumed, the breast cancer

risk is reduced. Data also indicate that consumption of polyunsaturated omega-3 fatty acids such as eicosapentanoic and docosahexanoic acids, found primarily in certain fish oils, is not associated with increased risk and may even protect against cancer, including breast cancer⁴⁹. The effect of the type of fat consumed on breast cancer risk is particularly important because while trying to reduce saturated fat and cholesterol intake-risk factors for cardiovascular disease-American women appear to be consuming greater amounts of oils, including those high in omega-6 fatty acids. For example, between 1959 and 1982 in the United States, the daily per capita saturated fat intake remained constant (55 g), but the linoleic acid intake increased by 73% (15 g to 26 g)⁵⁰.

The fact that intakes of both saturated fat and polyunsaturated fat have been positively associated with breast cancer risk in international correlation studies, but not consistently in case-control and cohort studies, may be due partly to methodological bias⁵¹. Substantial measurement error is associated with the dietary recall assessment methods used in large population studies. For example, a 24-hour recall does not adequately represent components of the diet. Also, it should be noted that in dietary recall surveys, respondents may be more likely to remember obvious sources of saturated fat - such as meats and dairy products- than less visible sources of polyunsaturated fats- such as baked products and snack foods⁵². If unsaturated fat is a contributing factor to cancer risk, as may be true for breast cancer, the relationship may be harder to document than that for saturated fat, which has been consistently associated with risk of colorectal cancer in correlational, case-control, and cohort studies⁵³.

Level of fat. The relatively homogeneous high-fat diets reportedly consumed in most cohort studies, as compared with the wider ranges of fat intake observed internationally, exemplify a methodological limitation of analytic epidemiologic studies. It may be possible to discern the relationship of dietary fat to colorectal cancer incidence when studying quintiles of fat intake from a low of 32% to a high of 44%, as Willett and colleagues⁵⁴ have done, if the correlation between dietary fat and colorectal cancer is strong within this dietary range. However, if a broader range of intake is needed to discern whether a correlation exists between fat and breast cancer, it may not be evident in studies such as this one. Prentice et al.³⁹ pointed out that for such a small range of fat intake, only a 15% gradient in breast cancer incidence across quintiles could be expected, too small a change to be detected with high probability. It may take a much broader gradient, involving much lower levels of fat intake, possibly 20% to 25% of calories, or even lower, to achieve a measurable reduction in breast cancer incidence.

Effect of age. Fat intake appears to be associated with colorectal cancer incidence at any age but with breast cancer only after age 50, primarily in postmenopausal women⁴⁰. Nevertheless, diets at any age could be contributing factors to both of these cancers. If dietary fat early in life- for example, during adolescence- exerts a major influence on breast cancer, analysis of diets in adult women may not be relevant⁴⁴. The most likely situation is that both childhood and adult diets impact breast cancer risk at a later age.

Mechanisms. The potential mechanisms that dietary fat may play a role in the enhancement of mammary tumor development include: inhibiting effects on immune system activity; increased prostaglandin synthesis, which may affect cell proliferation; increased levels of certain lipid peroxy

radicals and/or oxygen radicals, possible activators of cell proliferation; enhanced cell membrane fluidity, associated with increased cell division; inhibition of the passage of low molecular weight, possibly growth regulatory molecules through membrane structures; increased levels of sex steroid hormones, believed to play a role in breast cancer development; and enhanced hormone-induced mammary gland growth responsiveness⁵⁶.

Vegetables, fruits, and fiber. Epidemiologic studies suggest that the risk of certain cancers, including breast cancer, may be lowered by increased intake of dietary fiber and other dietary constituents associated with high intakes of vegetables, fruits, and whole grains. In a review of seven case-control studies³⁹, an inverse association between breast cancer risk and consumption of fiber and fiber-rich foods was found in six studies. In five of these studies, the relationship between fiber and vegetable consumption and breast cancer was stronger than the association with fat intake. Fiber may assist in preventing breast cancer by lowering circulating levels of estrogen. Several studies examining the connection between diet and systemic sex hormones patterns in women indicated that high total fiber intake and high intake of vegetable fiber, grain fiber, and fiber from fruits and berries were associated with low levels of testosterone, estrone, and androstenedione⁵⁷. Overall, reduction in the bioavailability of these hormones suggest that a fiber-enriched diet could reduce the risk of hormone-dependent cancer⁵⁸. It often is not possible, however, to separate the cancer-protective contributions of fiber from contributions of other potentially protective naturally occurring nutritive and nonnutritive constituents of foods. In a combined analysis of 12 case-control studies, Howe and colleagues⁴⁰ found statistically significant inverse associations between fiber, vitamin A, β -carotene, and vitamin C, all markers of vegetable and fruit intake, and breast cancer risk in postmenopausal women.

Dietary Risk Factors in African American Women. There is a large body of epidemiological research linking the consumption of high fat diets with increased risk of chronic illness⁵⁹⁻⁶⁰. High fat diets have been linked to an increased risk of heart disease, breast cancer, prostate cancer, colon cancer, and adult onset diabetes⁶⁰. The Healthy People 2000 goals include a reduction in dietary fat intake to 30% of calories from fat⁶⁰. There is some evidence that people would benefit from ever more dramatic reductions in their fat intake⁶¹. The National Cancer Institute (NCI), estimated that "...at a minimum, 30,000 lives could be saved by the year 2,000 if Americans would modify their dietary habits"⁶². Recent reports indicate that black Americans have a high burden for cancers of the breast, colon, and prostate⁶³, and preferentially select high fat, low fiber diets⁶³. When compared with whites, black Americans (cumulative to age 70 years, 1979-81 data), suffered 8,118 excess deaths from cancer⁶⁴. Additionally, they suffered 20,335 excess deaths from other chronic diseases (heart disease/stroke, diabetes) for which dietary guidelines also emphasize low-fat/high-fiber intakes⁶⁴.

While the public seems to be generally aware of the need to reduce fat intake, surveillance data suggests that only modest declines in fat intake have occurred over the past 20 years and that considerable change will have to occur if the Healthy People 2000 goals are to be met^{61,65}. The problem of reducing fat intake in the American population in general, and in African Americans in particular, is a matter of getting large numbers of people to make a permanent commitment to changing their eating habits⁶⁶. Considerable research on eating behavior suggests that getting

people to make permanent changes will be difficult and may require much stronger measures than educational campaigns^{59, 67-69}.

Secondary Prevention

Secondary prevention of breast cancer involves influencing women to engage in effective screening, detection and treatment-seeking behaviors. Breast self-examination is a low-cost method for the early detection of breast cancer, yet as many as 30% of women never perform breast self-examinations. Older women who are at highest risk are less likely to perform breast self-examinations⁷⁰. In addition to breast self-examination, clinical examinations by health professionals can also be useful in the early detection of breast cancer⁷¹. Mammography has been shown to reduce breast cancer mortality in women between 50 and 70 years of age, although its use in women under 50 has been questioned⁷². Finally, the extent to which a woman seeks immediate medical care or delays after identifying a potential change in breast tissue can effect cancer mortality risk. Some studies suggest that African American women, especially those with low income and education, may be less likely to engage in effective breast self-examination, seek mammogram screening, or seek treatment after detecting symptoms⁷¹⁻⁷⁴.

Barriers to Breast Cancer Prevention

Based on our review of the literature, we would like to focus on the following behaviors as likely risk factors for breast cancer: 1) dietary fat intake; and 2) intake of fiber, fruits, and vegetables. It is well established that these are difficult behaviors to change^{60,75}. The question of interest to us is why is it so difficult for people to change these behaviors, what are the barriers or obstacles that impede adopting healthier lifestyles?

A theoretical framework is valuable in guiding research on barriers to behavior change⁷⁶⁻⁷⁷. The Transtheoretical Model of Behavior Change has been extensively applied to many health behaviors but has only recently been applied to nutrition⁷⁸⁻⁸⁵. This model describes five stages people must past through in making permanent behavior changes: precontemplation no intention to change, contemplation seriously considering change, preparation taking steps to change, action actively involved in meaningful change, and maintenance maintaining meaningful change⁸⁰. We propose to use this model to structure our investigation of adherence to cancer prevention behaviors.

Barriers to lifestyle change that have been studied include emotional factors⁸⁶, environmental situations⁸⁷⁻⁸⁸, availability of healthy foods⁸⁹⁻⁹⁰, cultural influences⁹¹, television advertising⁹², age, occupation, and income⁹³, health beliefs¹⁷⁻¹⁸, attitudes¹⁹, self-efficacy¹⁴, high-risk situations⁸⁷⁻⁸⁸, social support¹⁴, and patient-provider communications¹⁵.

The secondary prevention behaviors we will focus on are: 1) breast self-examination, and 2) mammography. Barriers to secondary prevention include factors such as lack of knowledge⁹⁴, access to service⁹⁵⁻⁹⁷, availability of service⁹⁸⁻⁹⁹, economic constraints¹⁰⁰⁻¹⁰², physical and attitudinal problems⁹⁶, a decline in coping skills, and lack of physicians' compliance^{93-94,100,102}. Poor women have other urgent life priorities, lack resources, are less educated, and have not had a tradition of health prevention practices¹⁰².

There are still some basic theoretical and methodological questions that remain unanswered about barriers to adherence. What are the basic units of analysis for studying adherence? What important classes of variables must be considered? Are some variables more important than others? How can we operationalize and measure these variables for research purposes? Can we develop empirical methods for determining which barriers are most important in accounting for the variability in adherence over time and across situations and behaviors? Are there important individual differences in the types of obstacles that cause adherence problems? Finally, if we solve some of these conceptual and research problems, how do we translate this knowledge into improved interventions and public healthy policy?

Making and maintaining lifestyle changes involves several key components: knowledge, motivation, skill, problem solving, and persistence⁸⁸. Exactly how each process is involved depends upon the behavior to be changed and on the individual's stage of change for that behavior. The maintenance of changes also involve knowledge, motivation, skill, and problem solving that differs from that which is required to initially make changes.

When disease prevention is understood as the persistent choice of healthy behaviors in the context of a person's every day life, it becomes easier to understand why people find it so difficult to make and maintain lifestyle changes. There are many cognitive, emotional, environmental, and interpersonal events that function to punish healthy behaviors and reward unhealthy behaviors. Much theoretical and empirical work has been done on the problem of patient adherence, but there remains a clear need for the development of new methodologies that will lead to practical results.

PURPOSE OF PRESENT WORK

Purpose

Our research objective is to systematically apply the concept of barriers to adherence to breast cancer prevention in African American Women. We propose to identify, describe, and classify the obstacles or barriers that prevent African American women from making lifestyle changes that would result in primary or secondary cancer prevention. We will develop an instrument to measure the degree to which an individual faces different obstacles, then describe the prevalence of these barriers in a pilot study of women in Nashville, Tennessee.

Technical Objectives

1. To identify and describe the barriers to changing the following behaviors for African American women.
 - A. Reducing dietary fat intake.
 - B. Increasing consumption of fruits and vegetables.
 - C. Breast self-examinations.
 - D. Breast cancer screening by mammogram.

2. To develop a quantitative assessment tool to measure the presence of each barrier to making primary and secondary prevention behavior changes for a particular individual.
3. To use this tool to establish preliminary norms in an urban, southern, African American community.
4. To investigate individual differences in obstacles to behavior change, and differences between low and middle income black and white women.

METHODOLOGICAL APPROACH

A Proposed Methodology to Overcome Barriers to Behavior Change

Given the need to investigate barriers to lifestyle change for specific behaviors in different populations, a general methodology for conducting such research is needed. While there has been considerable methodological work in the area of health promotion planning, the methods for identifying barriers to adherence have not been adequately developed. Based on research by Schlundt and colleagues¹⁰³⁻¹¹¹, we propose a general model of research and development that can be followed to identify, measure, describe, and overcome barriers to changing behavior in a particular target population:

1. Selection of the population, the health problem, and the behavioral risks.
2. Literature review of current knowledge, both general and population specific.
3. Use of qualitative research methods to identify and describe:
 - a. specific behavior changes required
 - b. barriers to making changes
 - c. critical situations in which decision making concerning risky behaviors occurs
4. Systematic analysis and summary of qualitative data: Identification and classification of change targets and the obstacles to making these changes
5. Development and validation of measurement tools for quantifying obstacles to change
6. Population-based quantitative survey's of obstacles to change
7. Investigation of individual and subgroup differences
8. Development and evaluation of intervention programs that specifically address the commonly encountered obstacles to change and that are appropriately tailored to meet individual

and cultural differences in intervention needs.

Overview of Project Design

The methodology of this project is guided by the systematic methodology for overcoming adherence obstacles described in the background section. Specifically, we will be focusing on steps three through seven in this project. This work will be conducted in four phases. Phase I will use semi-structured interviews with 200 African American women to identify and describe barriers to breast cancer prevention. We will systematically analyze this information and develop a taxonomy of barriers to breast cancer prevention. Phase II will involve the development of a measurement tool, The Obstacles to Breast Cancer Prevention Questionnaire, and an evaluation of its psychometric properties using African American women. Phase III uses telephone interviews with randomly selected women from the Nashville community to describe the prevalence of barriers to breast cancer prevention. Because race and income are often confounded, our research will explicitly make comparisons among black and white subjects, and among lower income below Nashville median income and higher income above Nashville median income subjects in Phase III. This approach will allow us to draw conclusions about barriers that are unique to African American women versus barriers that are a function of socioeconomic status and barriers that are common to all women. Phase IV will pool the questionnaire data from phases II and III and use hierarchical cluster analysis to look at patterns of individual differences in obstacles to cancer prevention.

Expected Results

1. For each of two primary and two secondary prevention behaviors for breast cancer, we will empirically develop a list of barriers that prevent or impede the adoption of these behaviors by African American low and middle income women.
2. For each of the behaviors, we will develop a questionnaire that measures the presence of each type or category of barrier, and we will evaluate the psychometric properties of these questionnaires.
3. In a sample of white and African American women drawn from the Nashville community, we will document the prevalence of the barriers to primary and secondary breast cancer prevention. We will be able to describe those barriers that are unique to African American women, those that are unique to low income women, and those that are common to all women.
4. We will also describe patterns of individual differences in barriers to primary and secondary breast cancer prevention.
5. We expect that the results of this research will provide a rational and empirical basis for the development and planning of community and clinical breast cancer prevention programs.

BODY OF THE REPORT

RESULTS

Overview of Activities

This report covers Phase II of the research activities – development and validation of the Obstacles questionnaires for each of the breast cancer prevention behaviors: lowering fat intake, increasing consumption of fruits and vegetables, doing breast self-examinations, and getting a mammogram. The activities reported here include development of the initial semi-structured questionnaires to elicit, for each behavior,

- 1) the range of obstacles perceived by the subject population,
- 2) derivation of a key item pool of barriers, and
- 3) development and testing of a structured questionnaire that could be used to determine the prevalence of barriers in a representative sample of low and moderate income blacks and whites in Nashville.

Developing the Taxonomy of Barriers

Data were gathered on a convenience sample of 155 African-American women, using a semi-structured questionnaire. Information was obtained on the subject's stage-of-change, then barriers were probed in an open-ended questionnaire in problem areas derived from the comprehensive literature searches. For the primary prevention behaviors, problem areas included lack of family support, difficulty changing, financial concerns/costs, habits and family traditions, taste and preference for specific foods, distrust of medical information, time and effort involved, not liking to make changes, being under too much stress, job or place that you work, being too busy, your health, the way foods make you feel, unsure that it is necessary to do so, eating away from home or at restaurants, lack of knowledge, or attitude towards specific foods. For the secondary prevention behaviors, problem areas included lack of knowledge of risk factors, lack of access to services, financial concerns/costs, lack of availability of services, cultural attitudes, and attitudes of physicians to screening.

At the end of each section, the participant was asked if she could think of any other things that might make changing more difficult. All participants were given a complete set of prompts, although the wording was slightly different depending upon the individual's stage of change. The extensive questionnaire was provided in the first Annual Report (1997).

Coding the Questionnaires

The Coding System

The system was developed by Schlundt from one originally developed for diabetes. The method was derived to systematically classify the reasons participants gave for not wanting to change, or for finding it difficult to make changes. The unit of analysis was the explanation. A response to any particular interview question was first partitioned into explanations. The coding system allowed each explanation to be placed into a single category. The system was composed of two major categories – psychological and environmental. Each category was subdivided into subcategories which were further divided until the final set of hierarchical codes were derived. The coding items were first gleaned from the literature review; five sample questionnaires were used to test the item-types; items were added and/or modified; until a satisfactory system was in place. A Manual was written describing the coding process and each coding category. The Manual developed by

Schlundt was provided in the first Annual Report (1997).

Training the Coders

The questionnaires were coded by three people – a registered dietitian and two undergraduate psychological students – who were specially trained for this study by Schlundt. During training, the three coders read the Manual, discussed their questions, practiced independently on coding five questionnaires, then compared coding of the same questionnaires. This process was used to establish a common understanding and agreement on the meaning of the different coding categories. The coding worksheet is attached in Appendix A.

Coding Strategy

Each coder was assigned randomly to be the primary coder of one-third of the interviews. An additional sample of one-half was selected to be coded twice for a reliability assessment. The coders were not aware of which were the primary interviews or which were the reliability checks.

Reliability of Coding

For each behavior, the data were recorded as the number of times a specific explanation was given (Appendix A). If the explanation was never used, it was coded as zero. To determine the reliability of coding, a correlation coefficient was computed separately for each category of the coding system by correlating the frequencies of the primary interviews with the frequencies of the reliability check interviews (Appendix B, Tables 1 and 3). For dietary fat, 22 of the 156 possible coding categories could not be evaluated for reliability since one of the two coders never used the categories (Table 1). For fruits and vegetables, no correlation could be computed for 27 of the 156 possible categories, because one of the two coders never used the categories (Table 1). Similarly, correlation coefficients for 36 of the BSE's and 41 of the mammography categories could not be computed (Table 3). Tables 1 and 3 include these correlation coefficients along with the mean number of times each category was used by the primary coder. Where reliability could be evaluated, it was usually very high ($r = .80$ to $.99$, with the exception of a few outliers), indicating that the primary and secondary coders showed excellent agreement. Subsequent analyses present data only from the primary coder.

Deriving the Item Pool of Barriers

Obstacles were classified by the frequency with which they were mentioned for each behavior, with the most frequently mentioned obstacles at the top of the table (see Appendix B, Tables 2,3,5 and 6).

Developing the Structured Questionnaires

First Generation Questionnaires

The most frequently mentioned items from the item pool were used to derive the first generation questionnaires. A Likert-type scale was fashioned, and the subject asked if 'strongly agree', 'agree', 'don't know', 'disagree', and 'strongly disagree' to 23 items on the obstacles to low fat eating questionnaire, 23 items on the obstacles to 'fruits and vegetables' questionnaire, 13 items on the obstacles to BSE questionnaire, and 12 items on the mammography questionnaire. The questionnaires were piloted on 25 people. Analyses of the frequencies with which each choice was

made indicated that these questionnaires were not satisfactory.

Second Generation Questionnaires

The format of the questionnaires was changed to a choice of 'extremely difficult', 'very difficult', 'difficult', 'a little difficult', and 'not a problem', and the items were made into statements that required completion with one of the difficulty choices. Based on the first generation pilot, there were now 22 items on the low fat eating questionnaire, 17 on the fruits and vegetables questionnaire, 10 on the BSE questionnaire, and 11 on the mammography questionnaire. The questionnaires were piloted on 10 people, most of them professional. Analyses of the responses to the questionnaires indicated that there was a range of choices for most of the items.

Third Generation Questionnaires

Based on the second pilot, the items were cut to 19 on the low fat questionnaire, 14 on the fruits and vegetables questionnaire, 9 on the BSE questionnaire, and 9 on the mammography questionnaire. These questionnaires are provided in Appendix C.

Validating the Questionnaires

The validation phase on 100 people is nearing completion. Delays in subject recruitment for the psychometric evaluation occurred over the holiday period. We are certain to catch up during Phase III, when we expect to use a professional team to conduct the community surveys. A small grant has been obtained for this purpose.

The validation consists of : a) internal consistency or reliability (coefficient alpha); b) validity in relation to dietary measures, preventive practices, and stage of change; and c) relationships with the usual demographic variables such as age, income, and education. These analyses may lead to a further shortening of the questionnaire. The dietary measures include those which we have been working to validate in African American women. They include the Meharry Food Frequency Questionnaire, an Eating Behavior Patterns Questionnaire, and an Eating Styles Questionnaire. A Health Status questionnaire to ascertain preventive practices will also be administered. These questionnaires are attached in Appendix D.

CONCLUSIONS

Two instruments have been developed during Phase II of this project. These include:

- 1) a semi-structured questionnaire, used to evolve a taxonomy of barriers to primary and secondary preventive behaviors associated with breast cancer risk. The primary behaviors are decreasing fat intake and increasing fruits, vegetables, and fiber intake. The secondary prevention behaviors are doing monthly breast self-examinations (BSE) and getting timely mammograms. Open-ended questionnaire items were derived from extensive literature searches. The questionnaire also included measures of stage of behavior change derived by Prochaska and associates.
- 2) a structured questionnaire derived from a list of priority barriers in the item pool of barriers gained from 155 African American women who responded to the semi-structured questionnaire. This questionnaire is currently being validated psychometrically for internal consistency/reliability, as well as in relation to dietary measures, preventive practices, and stage of change.

This research builds upon other work that has been funded by the Department of Defence. This includes the use of the Transtheoretical Model of Behavior Change; Reaching African American Women for Change of Dietary Behaviors; and the Development of Dietary Instruments for Use in Dietary Assessment of African American Women.

Four manuscripts are planned from results during this phase; two are near completion. These will include information on the methodology used to derive the system of taxonomy, the item pool of barriers, as well as a list of barriers in relation to stage of change and type of behavior.

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APPENDICES

Appendix A

Coding Worksheet

Number	Code	Low-fat	Fruit & Veg	BSE	Mammography
1.1.1.1	Negative emotional trigger				
1.1.1.2	Fear trigger				
1.1.1.2	Positive emotional trigger				
1.1.1.4	Boredom trigger				
1.1.1.5	Deprivation trigger				
1.1.2.1	Negative emotional consequence				
1.1.2.2	Positive emotional consequence				
1.1.2.3	Embarrassment				
1.1.2.4	Guilt or shame				
1.2.1	Laziness – personality trait				
1.2.2	Other personality trait				
1.3.1	Cravings				
1.3.2	Hunger				
1.3.3	Pain trigger				
1.3.4	Pain consequence				
1.3.5	Health				
1.4.1.1	I failed				
1.4.1.2	Lack of confidence				
1.4.1.3	Difficulty				
1.4.1.4	Lack of knowledge				
1.4.1.5	Other thoughts				
1.4.2.1	Negative self-evaluation				
1.4.2.2	Loss of pride or self-esteem				
1.4.2.3	Not liking to change				
1.4.2.4	Unsure of benefits				
2.1.1	Poverty				
2.1.2	Specific costs				
2.1.3	Competing costs				
2.2.1	Emotional support				
2.2.2	Tangible support				
2.2.3	Family conflict				
2.2.4	Sabotage				
2.2.5	Family tradition				
2.2.6	Family demands				
2.3.1	Work demands				
2.3.2.1	Actions of coworkers				
2.3.2.2	Rules of workplace				
2.3.2.3	Resources of workplace				
2.3.2.4	Other aspects of work				
2.4.1	Resources at home				
2.4.2	Space				
2.4.3	Other aspect of home				
2.5.1	Travel and transportation				
2.5.2.1	Restaurants				
2.5.2.2	Fast food				
2.5.2.3	Groceries				
2.5.2.4	Medical resources				
2.5.3.1	Religious traditions				
2.5.3.2	Social events				
2.5.3.3	Social sanction				
2.5.3.4	Folk beliefs				
2.5.3.5	Attitudes towards medicine				
2.6.1	Social facilitation				
2.6.2	Interpersonal Conflict				
2.6.3	Lack of social support				

Obstacles to Adherence Coding System

Subject ID _____

Education _____

Coder _____

Age _____

Income _____

Date _____

Height _____

Method _____

Weight _____

Appendix B

Tables

(see Table of Contents for List of Tables)

Table 1: Obstacles to Behavior Change Coding System with Reliabilities and Means and Standard Deviations for Dietary Fat and Fruits and Vegetables

Hierarchical Classification of Explanations	r-Fat ^a	Mean Fat ^b	SD Fat	r Frveg	Mean Frveg	SD Frveg
1.0 Psychological Explanations						
1.1 Emotional Explanations						
1.1.1 Feeling Triggers						
1.1.1.1 Negative Emotional Triggers	0.95	0.15	0.46	1	0.05	0.25
1.1.1.2 Fear Trigger		0	0	0	0	0
1.1.1.3 Positive Emotional Trigger		0	0	1	0.01	0.11
1.1.1.4 Boredom Trigger		0	0	0	0	0
1.1.1.5 Deprivation Trigger		0.025	0.25	0	0.006	0.002
1.1.2 Feeling Consequences						0
1.1.2.1 Negative Emotional Consequences	0.92	0.051	0.22	0	0.05	0.25
1.1.2.2 Positive Emotional Consequence	1	0.013	0.11	0	0	0
1.1.2.3 Embarrassment		0	0	0	0	0
1.1.2.4 Guilt or Shame		0	0	0	0	0
1.2 Personality Explanations						
1.2.1 Laziness	1	0.03	0.16	1	0.05	0.24
1.2.2 Other trait		0.08	0.08	0	0	0
1.3 Physiological Explanations						
1.3.1 Cravings	0.97	0.19	0.41	1	0.03	0.18
1.3.2 Hunger	0.96	0.05	0.29	0.93	0.05	0.24
1.3.3 Pain trigger		0	0	0	0.006	0.08
1.3.4 Pain Consequence	1	0.04	0.26	0.94	0.16	0.73
1.3.5 Health	1	0.07	0.33	0.99	0.32	1.04

1.3.6 Taste	0.99	1.1	1.19	1	0.5	1.01
1.4 Cognitive Explanations						
1.4.1.1 Thoughts as Triggers						
1.4.1.1.1 I Failed		0	0	0	0.006	0.08
1.4.1.2 Lack of Confidence	1	0.012	0.11	1	0.03	0.2
1.4.1.3 Difficulty	0.85	0.21	0.56	0.74	0.1	0.32
1.4.1.4 Lack of Knowledge	1	0.33	0.65	1	0.17	0.48
1.4.1.5 Lack of Willpower	0.95	0.26	0.52	1	0.1	0.32
1.4.1.6 I forgot		0	0	0.44	0.04	0.22
1.4.1.7 I Never Thought of It	1	0.01	0.11	1	0.06	0.23
1.4.1.8 Other thoughts		0	0	0	0	0
1.4.1.2 Thoughts as Consequences						
1.4.2.1 Negative Self-Evaluation		0	0	0	0	0
1.4.2.2 Loss of Pride or Self-Esteem		0	0	0	0	0
1.4.2.3 Not Liking to Change	0.94	0.56	0.87	0.95	0.29	0.74
1.4.2.4 Unsure of Benefits	0.97	0.44	0.87	0.83	0.06	0.25
1.4.2.5 Failure Experience	1	0.02	0.11	0	0	0
2.0 Environmental Explanations						
2.1 Time	0.99	1.18	1.48	0.99	0.61	1.01
2.2 Financial						
2.2.1 Poverty	0.89	0.17	0.48	0.79	0.18	0.54
2.2.2 Specific Costs	0.99	0.5	0.69	0.96	0.59	0.99
2.2.3 Competing Costs	1	0.003	0.26	0	0	0
2.3 Family						

2.3.1 Emotional Support	1	0.02	0.14	1	0.02	0.18
2.3.2 Tangible Support	1	0.03	0.26	1	0.01	0.11
2.3.3 Family Conflict	1	0.07	0.26	1	0.03	0.16
2.3.4 Sabotage	0.82	0.23	0.59	1	0.07	0.3
2.3.5 Family Tradition	0.97	0.41	0.66	1	0.06	0.29
2.3.6 Family Demands	0.95	0.42	0.77	0.97	0.12	0.39
2.4 Work						
2.4.1 Work Demands	0.97	0.47	0.91	0.99	0.18	0.54
2.4.2 Work Environment						
2.4.2.1 Actions of Coworkers	1	0.05	0.25	0	0.01	0.11
2.4.2.2 Rules of Workplace		0	0	0	0	0
2.4.2.3 Resources of Workplace	0.92	0.12	0.35	0.97	0.13	0.37
2.4.2.4 Other Aspects of Work	1	0.07	0.26	1	0.01	0.14
2.5 Home Environment						
2.5.1 Resources at Home		0.03	0.26	1	0.01	0.18
2.5.2 Space		0	0	0	0	0
2.5.3 Other Aspects of Home	0.7	0.012	0.11	1	0.006	0.08
2.6 Community						
2.6.1 Travel and Transportation		0.006	0.08	1	0.03	0.18
2.6.2 Resources						
2.6.2.1 Restaurants	0.94	0.51	0.66	0.94	0.29	0.46
2.6.2.2 Fast Food	1	0.32	0.57	1	0.14	0.41
2.6.2.3 Groceries	1	0.019	0.14	1	0.01	0.14
2.6.2.4 Vending Machines	0.96	0.09	0.31	1	0.05	0.21

2.6.2.5 Medical Resources	0.006	0.08	0	0	0
2.6.2.6 Seasonal, Regional, or Weather	0.02	0.14	0.98	0.15	0.54
2.6.3 Health Beliefs and Traditions					
2.6.3.1 Religions Traditions	0	0	0	0	0
2.6.3.2 Social Events	0.96	0.49	1	0.03	0.19
2.6.3.3 Social Sanction	1	0.03	0	0	0
2.6.3.4 Folk Beliefs		0	0	0	0
2.6.3.5 Attitudes Towards Medicine	1	0.13	0.39	0.91	0.24
2.6.3.6 Health Recommendations		0	0	0	0
2.7 Interpersonal					
2.7.1 Social Facilitation	1	0.06	0.28	0	0
2.7.2 Interpersonal Conflict	1	0.01	0.11	0	0
2.7.3 Lack of Social Support	1	0.03	0.18	0	0

^a The Pearson correlation between the frequency with which a category was mentioned in the primary and secondary coders. The sample size for computation of this coefficient was 54.

^b The mean number of times a particular barrier was mentioned across 155 interviews.

Table 2: Most Frequently Mentioned Obstacles to Reducing Dietary Fat Along with Differences as a Function of Stage of Change

Explanation	Frequency ^a	P ^b <	Order ^c
2.1 Time	183	0.0001	2,3,4,5,1
1.3.6 Taste	171	0.001	2,1,4,3,5
1.4.2.3 Not Liking to Change	87	0.002	3,2,1,4,5
2.6.2.1 Restaurants	79	0.007	5,2,4,3,1
2.2.2 Specific Costs	78	N.S.	
2.4.1 Work Demands	73	0.0001	2,3,4,5,1
1.4.2.4 Unsure of Benefits	68	0.0001	1,2,5,4,3
2.3.6 Family Demands	65	N.S.	
2.3.5 Family Tradition	64	N.S.	
1.4.1.4 Lack of Knowledge	51	N.S.	
2.6.2.2 Fast Food	50	0.02	3,4,2,5,1
1.4.1.5 Lack of Willpower	40	N.S.	
2.6.3.2 Social Events	39	0.006	5,4,3,3,1
2.3.4 Sabotage	36	N.S.	
1.4.1.3 Difficulty	33	0.002	2,3,4,1,5
1.3.1 Cravings	29	N.S.	
2.2.1 Poverty	26	0.05	3,1,4,2,5
1.1.1.1 Negative Emotional Triggers	23	N.S.	
2.6.3.5 Attitudes Towards Medicine	20	N.S.	
2.4.2.3 Resources of Workplace	19	N.S.	
2.6.2.4 Vending Machines	14	N.S.	
1.2.2 Other trait	12	N.S.	
2.3.3 Family Conflict	11	N.S.	
1.3.5 Health	11	N.S.	
2.4.2.4 Other Aspects of Work	11	N.S.	
2.7.1 Social Facilitation	9	0.04	5,2,1,3,4
1.1.2.1 Negative Emotional Consequences	8	N.S.	
2.4.2.1 Actions of Coworkers	8	N.S.	

1.3.2 Hunger	8	N.S.
1.3.4 Pain Consequence	6	N.S.
2.7.3 Lack of Social Support	5	N.S.
1.2.1 Laziness	5	N.S.
2.6.3.3 Social Sanction	5	N.S.
2.5.1 Resources at Home	5	N.S.
2.3.2 Tangible Support	5	N.S.

- ^a The total number of times the barrier was mentioned across 175 interviews
- ^b The p-value associated with a one-way analysis of variance comparing the frequency with which each barrier was mentioned across the five stages of change.
- ^c The ordering of the mean number of times a reason was mentioned by stage of change from highest to lowest. When a tie occurred, the means were listed in numeric order. 1 = precontemplation, 2 = contemplation, 3 = preparation, 4 = action, and 5 = maintenance.

Table 3: Most Frequently Mentioned Obstacles to Increasing Fruits and Vegetables Along with Differences as a Function of Stage of Change

Explanation	Frequency ^a	P ^b <	Order ^c
2.1 Time	94	0.007	2,3,1,5,4
2.2.2 Specific Costs	91	0.04	2,1,4,5,3
1.3.6 Taste	77	0.03	2,3,1,5,4
1.3.5 Health	49	0	3,1,5,2,4
2.6.2.1 Restaurants	45		
1.4.2.3 Not Liking to Change	45	0.001	2,1,5,3,4
2.2.1 Poverty	28	N.S.	
2.4.1 Work Demands	28	0	2,3,1,4,5
1.4.1.4 Lack of Knowledge	26	N.S.	
1.3.4 Pain Consequence	25	N.S.	
2.6.2.6 Seasonal, Regional, or Weather	23	0.008	4,5,2,1,3
2.6.2.2 Fast Food	22	N.S.	
2.4.2.3 Resources of Workplace	20	N.S.	
2.3.6 Family Demands	18	N.S.	
1.4.1.3 Difficulty	15	N.S.	
1.4.1.5 Lack of Willpower	15	0.003	2,1,3,5,4
2.3.4 Sabotage	11	N.S.	
2.3.5 Family Tradition	9	0.02	2,1,5,3,4
1.4.2.4 Unsure of Benefits	9	0.04	1,2,4,5,3
2.6.3.5 Attitudes Towards Medicine	9	N.S.	
1.4.1.7 I Never Thought of It	9	0.01	2,3,1,4,5
1.2.1 Laziness	8	N.S.	
1.3.2 Hunger	8	N.S.	
2.6.2.4 Vending Machines	8	N.S.	
1.1.1.1 Negative Emotional Triggers	8	N.S.	
1.1.2.1 Negative Emotional Consequences	8	N.S.	
1.4.1.6 I forgot	6	N.S.	
1.4.1.2 Lack of Confidence	5	N.S.	
2.6.1 Travel and Transportation	5	N.S.	
1.3.1 Cravings	5	N.S.	
2.6.3.2 Social Events	5	N.S.	
2.3.3 Family Conflict	5	N.S.	

^a The total number of times the barrier was mentioned across 175 interviews

^b The p-value associated with a one-way analysis of variance comparing the frequency with which each barrier was mentioned across the five stages of change.

- c The ordering of the mean number of times a reason was mentioned by stage of change from highest to lowest. When a tie occurred, the means were listed in numeric order. 1 = precontemplation, 2 = contemplation, 3 = preparation, 4 = action, and 5 = maintenance.

Table 4: Obstacles to Behavior Change Coding System with Reliabilities and Means and Standard Deviations for Breast Self-Examination and Mammography

Hierarchical Classification of Explanations	r-bse ^a	Mean bse ^b	SD bse	r_mam	Mean mam	SD mam
1.0 Psychological Explanations						
1.1 Emotional Explanations						
1.1.1 Feeling Triggers						
1.1.1.1 Negative Emotional Triggers	0.96	0.08	0.39	1	0.05	0.26
1.1.1.2 Fear Trigger	0.98	0.38	0.84	0.98	0.65	1.18
1.1.1.3 Positive Emotional Trigger		0	0		0	0
1.1.1.4 Boredom Trigger		0	0	0	0	0
1.1.1.5 Deprivation Trigger		0	0		0	0
1.1.2 Feeling Consequences						
1.1.2.1 Negative Emotional Consequences	1	0.03	0.18	0.92	0.14	0.45
1.1.2.2 Positive Emotional Consequence		0	0	0	0	0
1.1.2.3 Embarrassment	1	0.02	0.15	0.81	0.02	0.16
1.1.2.4 Guilt or Shame		0	0	0	0	0
1.2 Personality Explanations						
1.2.1 Laziness	1	0.06	0.29	0.95	0.04	0.29
1.2.2 Other trait		0.008	0.08	0	0	0
1.3 Physiological Explanations						
1.3.1 Cravings	0	0	0		0	0
1.3.2 Hunger	0	0	0		0	0
1.3.3 Pain trigger	1	0.008	0.08	0.7	0.02	0.14
1.3.4 Pain Consequence	1	0.02	0.15	0.94	0.17	0.49
1.3.5 Health	1	0.04	0.32		0	0
1.3.6 Taste	0	0	0		0	0
1.4 Cognitive Explanations						
1.4.1.1 Thoughts as Triggers						
1.4.1.1.1 Failed		0	0		0	0
1.4.1.2 Lack of Confidence	0.61	0.03	0.17		0	0
1.4.1.3 Difficulty	1	0.07	0.32		0	0
1.4.1.4 Lack of Knowledge	0.99	0.59	1.28	1	0.03	0.17

1.4.1.5 Lack of Willpower	1	0.04	0.23	1	0.03	0.22
1.4.1.6 I forgot	0.95	0.9	1	0.98	0.23	0.53
1.4.1.7 I Never Thought of It	0.87	0.09	0.4	1	0.02	0.2
1.4.1.8 Other thoughts		0	0	0	0	0
1.4.1.2 Thoughts as Consequences						
1.4.2.1 Negative Self-Evaluation		0	0		0	0
1.4.2.2 Loss of Pride or Self-Esteem		0	0		0	0
1.4.2.3 Not Liking to Change	1	0.008	0.08	1	0.02	0.14
1.4.2.4 Unsure of Benefits	0.96	0.06	0.33	1	0.08	0.37
1.4.2.5 Failure Experience		0	0	0	0	0
2.0 Environmental Explanations						
2.1 Time	0.96	0.38	1.01	0.95	0.33	0.74
2.2 Financial						
2.2.1 Poverty	1	0.008	0.08	0.91	0.18	0.54
2.2.2 Specific Costs		0	0	0.86	0.09	0.37
2.2.3 Competing Costs		0.008	0.08	0	0	0
2.3 Family						
2.3.1 Emotional Support		0	0		0	0
2.3.2 Tangible Support		0.008	0.08		0	0
2.3.3 Family Conflict		0.008	0.08		0	0
2.3.4 Sabotage	1	0.008	0.08	1	0.02	0.14
2.3.5 Family Tradition		0	0		0	0
2.3.6 Family Demands		0.008	0.08	1	0.02	0.14
2.4 Work						
2.4.1 Work Demands	0.95	0.07	0.34	1	0.19	0.52
2.4.2 Work Environment						
2.4.2.1 Actions of Coworkers		0	0		0	0
2.4.2.2 Rules of Workplace		0	0		0	0
2.4.2.3 Resources of Workplace		0	0		0	0
2.4.2.4 Other Aspects of Work		0	0		0	0
2.5 Home Environment						

2.5.1 Resources at Home	0	0	0	0	0
2.5.2 Space	0	0	0	0	0
2.5.3 Other Aspects of Home	0	0	0	0	0
2.6 Community					
2.6.1 Travel and Transportation	0	0	1	0.03	0.22
2.6.2 Resources					
2.6.2.1 Restaurants	0	0	0	0	0
2.6.2.2 Fast Food	0	0	0	0	0
2.6.2.3 Groceries	0	0	0	0	0
2.6.2.4 Vending Machines	0	0	0	0	0
2.6.2.5 Medical Resources	1	0.02	0.2	0.009	0.09
2.6.2.6 Seasonal, Regional, or Weather			0	0	0
2.6.3 Health Beliefs and Traditions					
2.6.3.1 Religions Traditions	0	0	0	0	0
2.6.3.2 Social Events	0	0	0	0	0
2.6.3.3 Social Sanction	0	0	0	0	0
2.6.3.4 Folk Beliefs	0	0	0	0	0
2.6.3.5 Attitudes Towards Medicine	1	0.1	0.38	0.77	0.33
2.6.3.6 Health Recommendations		0	0	0.84	0.36
2.7 Interpersonal					
2.7.1 Social Facilitation		0	0	0	0
2.7.2 Interpersonal Conflict		0	0	0	0
2.7.3 Lack of Social Support		0	0	0	0

^a The Pearson correlation between the frequency with which a category was mentioned in the primary and secondary coders. The sample size for computation of this coefficient was 54.

^b The mean number of times a particular barrier was mentioned across 125 interviews for Breast Self Examination and 104 interviews for Mammography

Table 5: Most Frequently Mentioned Obstacles to Breast Self-Examination Along with Differences as a Function of Stage of Change

Explanation	Frequency ^a	p ^b <	Order ^c
1.4.1.6 I forgot	113	0.08	21345
1.4.1.4 Lack of Knowledge	74	0.001	32145
2.1 Time	48	N.S.	
1.1.1.2 Fear Trigger	48	0.001	13245
2.6.3.5 Attitudes Towards Medicine	13	N.S.	
1.4.1.7 I Never Thought of It	11	0.0001	13245
1.1.1.1 Negative Emotional Triggers	10	0.06	23514
2.4.1 Work Demands	9	N.S.	
1.4.1.3 Difficulty	9	N.S.	
1.4.2.4 Unsure of Benefits	8	0.0001	12534
1.2.1 Laziness	7	N.S.	
1.4.1.5 Lack of Willpower	5	N.S.	
1.3.5 Health	5	N.S.	
1.1.2.1 Negative Emotional Consequences	4	N.S.	
1.4.1.2 Lack of Confidence	4	N.S.	
1.1.2.3 Embarrassment	3	N.S.	
2.6.2.5 Medical Resources	3	N.S.	
1.3.4 Pain Consequence	3	N.S.	
1.3.3 Pain trigger	1	N.S.	
2.3.4 Sabotage	1	N.S.	
2.3.3 Family Conflict	1	N.S.	
2.2.3 Competing Costs	1	N.S.	
2.3.2 Tangible Support	1	N.S.	
2.2.1 Poverty	1	N.S.	
1.4.2.3 Not Liking to Change	1	N.S.	
1.2.2 Other trait	1	N.S.	
2.3.6 Family Demands	1	N.S.	

^a The total number of times the barrier was mentioned across 125 interviews

^b The p-value associated with a one-way analysis of variance comparing the frequency with which each barrier was mentioned across the five stages of change.

^c The ordering of the mean number of times a reason was mentioned by stage of change from highest to lowest. When a tie occurred, the means were listed in numeric order. 1 = precontemplation, 2 = contemplation, 3 = preparation, 4 = action, and 5 = maintenance.

Table 6: Most Frequently Mentioned Obstacles to Mammography Along with Differences as a Function of Stage of Change

Explanation	Frequency ^a	P ^b <	Order ^c
1.1.1.2 Fear Trigger	68	0.06	13425
2.1 Time	34	0.00	32451
1.4.1.6 I forgot	24	N.S.	
2.4.1 Work Demands	20	N.S.	
2.2.1 Poverty	19	0.00	32451
1.3.4 Pain Consequence	18	N.S.	
1.1.2.1 Negative Emotional Consequences	15	0.03	42153
2.6.3.5 Attitudes Towards Medicine	10	N.S.	23145
2.2.2 Specific Costs	10	N.S.	
2.6.3.6 Health Recommendations	10	0.00	13452
1.4.2.4 Unsure of Benefits	9	0.00	45123
1.1.1.1 Negative Emotional Triggers	5	N.S.	
1.2.1 Laziness	5	N.S.	
1.4.1.5 Lack of Willpower	3	N.S.	
1.4.1.3 Difficulty	3	N.S.	
1.1.2.3 Embarrassment	3	N.S.	
2.6.1 Travel and Transportation	3	N.S.	
2.3.6 Family Demands	2	N.S.	
2.3.4 Sabotage	2	N.S.	
1.4.2.3 Not Liking to Change	2	N.S.	
1.4.1.7 I Never Thought of It	2	N.S.	
1.3.3 Pain trigger	2	N.S.	
2.6.2.5 Medical Resources	1	N.S.	

^a The total number of times the barrier was mentioned across 104 interviews

^b The p-value associated with a one-way analysis of variance comparing the frequency with which each barrier was mentioned across the five stages of

^c The ordering of the mean number of times a reason was mentioned by stage of change from highest to lowest. When a tie occurred, the means were listed in numeric order. 1 = precontemplation, 2 = contemplation, 3 = preparation, 4 = action, and 5 = maintenance.

Appendix C

Structured Questionnaires

(Third Generation)

Obstacles to Low-Fat Eating Questionnaire

Name _____ Date _____ Id# _____

There is evidence that links high fat diets to cancer. It is recommended that you limit your intake of fatty foods in order to prevent cancer. Women have told us some of the reasons they find it hard to limit their fat intake.. Read each of the following reasons, and tell us how difficult each of these items is for you.

1. Do you almost always avoid eating high fat foods, for example butter, margarine, oil, salad dressing, fat meat, fried food, ice cream. (choose one of the following that best describes you)?

- ☐ NO and I do NOT intend to in the next 6 months
- ☐ NO, but I intend to begin in the next 6 months
- ☐ No, but I intend to begin in the next 30 days
- ☐ YES, and I have been, but for LESS than 6 months
- ☐ YES, and I have been for MORE than 6 months

Complete each statement below about eating a low-fat diet	Extremely Difficult	Difficult	A little Difficult	Not a problem
1. The time it takes to prepare low-fat foods makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The good taste of high fat foods makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Changing the way I eat makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Eating in restaurants and fast foods places makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The high cost of low-fat foods makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. My busy work schedule makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Keeping my family happy with the foods I cook makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. My family's habit of eating high fat foods makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Not knowing what foods to eat on a low-fat diet makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Not knowing what foods to avoid on a low-fat diet makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Complete each statement below about eating a low-fat diet	Extremely Difficult	Difficult	A little Difficult	Not a problem

11. Eating a lot of fast foods makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Not having the will power to pass up high fat foods that I enjoy makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Enjoying high fat foods at church meals and other social functions makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Family pressure to eat high-fat foods makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Cravings for high-fat foods makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Eating when I feel angry, upset, stressed, or depressed makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Not being able to buy low-fat foods at work makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Having to buy many special foods makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Feeling deprived of all the foods I like makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Obstacles to Breast Self-Examination Questionnaire

Name _____ Date _____ Id# _____

Women who practice regular breast self-examinations can find breast cancer early when it can be easily treated. However, many women have told us that they do not check their breasts every month for lumps. Women have told us some of the reasons they find it hard to do a breast self-examination every month. Read each of the following reasons, and tell us how difficult each of these items is for you.

1. Do you do a breast self-examination once a month (choose one of the following that best describes you)?

- ☐ NO and I do NOT intend to in the next 6 months
- ☐ NO, but I intend to begin in the next 6 months
- ☐ No, but I intend to begin in the next 30 days
- ☐ YES, and I have been, but for LESS than 6 months
- ☐ YES, and I have been for MORE than 6 months

Complete each statement below about doing a breast self-examination once a month	Extremely Difficult	Difficult	A little Difficult	Not a problem
1. Remembering to do a breast self-examination each month is →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Doing the breast exam correctly is →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. My fear of doing breast self-examination makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. My busy schedule makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Checking my breast each month for lumps is →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Spending so my time and energy on my job makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. My stressful life makes examining my breasts →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Discomfort or embarrassment makes examining my breasts →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Since nobody has ever shown me how to do a breast self-examination, I find it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Obstacles to Eating Fruits and Vegetables Questionnaire

Name _____ Date _____ Id# _____

There is evidence that eating five or more servings of fruits and vegetables each day may help prevent cancer. Women have told us some of the reasons they find it hard to eat the recommended servings of fruits and vegetables. Read each of the following reasons, and tell us how difficult each of these items is for you.

1. Do you almost always eat five or more servings of fruits or vegetables each day (choose one of the following that best describes you)?

- ☐ NO and I do NOT intend to in the next 6 months
- ☐ NO, but I intend to begin in the next 6 months
- ☐ No, but I intend to begin in the next 30 days
- ☐ YES, and I have been, but for LESS than 6 months
- ☐ YES, and I have been for MORE than 6 months

Complete each statement below about eating fruits and vegetables	Extremely Difficult	Difficult	A little Difficult	Not a problem
1. The time it takes to prepare fruits and vegetables makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The high cost of eating fruits and vegetables makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Liking other foods more than fruits and vegetables makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Changing the way I eat makes it makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Eating in restaurants and fast food places makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The time it takes to buy and prepare fruits and vegetables makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Getting an upset stomach or gas when I eat fruits or vegetables makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Not being able to get the fruits and vegetables I like all year round makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. My liking to eat fast food makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Complete each statement below about eating fruits and vegetables	Extremely Difficult	Difficult	A little Difficult	Not a problem

10. Not being able to get fruits and vegetables at work makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. The effort it takes to prepare fruits and vegetables makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. My family not liking to eat fruits and vegetables makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Not having transportation to get to a store makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Forgetting to eat fruits and vegetables makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Obstacles to Mammography Questionnaire

Name _____ Date _____ Id# _____

Doctors recommend that women have a mammogram done to see if they have breast cancer. Each woman should have a baseline mammogram by age 40. Between ages 40 and 49, women should have a mammogram every 1-2 years. From ages 50 and up, women should have a mammogram once every year. However, many women have told us that they do not have mammograms as recommended for their age. Women have told us some of the reasons they find it hard to have a mammogram as recommended. Read each of the following reasons, and tell us how difficult each of these items is for you.

1. How old are you _____ ?
2. Are you currently following the recommendation for mammography that are right for your age (choose one of the following that best describes you)?

- ☐ NO and I do NOT intend to in the near future
☐ NO, but I intend to do so in the next year
☐ No, but I intend to do so in the next 30 days
☐ YES, I have had a mammogram in the past, but I am now past due
☐ YES, and I have been getting mammograms always as recommended

Complete each statement below about having mammograms	Extremely Difficult	Difficult	A little Difficult	Not a problem
1. The fear of finding cancer makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. My busy schedule makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Remembering to schedule a mammogram is →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Being very busy at work makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The cost makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The pain and discomfort makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The scary stressful process of having a mammogram makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The time and effort to care for my family makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Not knowing where to get a mammogram makes it →→→→→	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix D

Validation Questionnaires

Name _____ Date _____

ID _____

Eating Styles Questionnaire

The following questions have to do with eating habits. For each question, decide whether the statement describes your eating habits. Please Answer each question as honestly as possible.

Answer by placing an X in the box that best describes how often each statement applies to you and your eating habits.

	Never	Rarely	Sometimes	Usually	Always
1. I avoid eating hamburgers, fried chicken, french fries, and other high-fat foods at fast food restaurants.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. When I eat at a restaurant, I look for low-fat foods to order.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I choose snack foods that are low in fat or fat free.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. When I want to eat meat, I choose baked, broiled, or boiled chicken without the skin instead of red meat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I avoid eating red meat (beef, ham, liver, or pork).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. When I eat red meat (beef, hamburgers, ham, hot dogs, or pork) I choose very lean cuts or trim off the fat (answer always if you never eat red meat).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. When I eat lunch meats (bologna, sliced ham, sliced turkey, salami) I often choose cuts that are low in fat or fat free (answer always if you never eat lunch meats).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I avoid using butter, margarine, gravy, regular mayonaise, and salad dressings made with oil.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I eat five or more servings of fruits and vegetables every day.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. When I have a choice between a regular product and one that is low-fat or fat free,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Never	Rarely	Sometimes	Usually	Always
I choose the low-fat or fat free product.					
11. When I buy dairy products (milk, yogurt, cheese, ice-cream), I buy items that are low-fat or fat free.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I eat a serving of bread, rolls, bagels, rice, pasta, grits, oatmeal, or cereal at every meal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I eat a green salad every day.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. When I eat greens and other vegetables, I never use fatback, butter, or other fats for seasoning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. When I eat grits, I avoid adding butter or margarine.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I avoid eating nut-breads, biscuits, or crossaint and choose breads that are low in fat or fat free instead.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Eating Behavior Patterns Questionnaire

Name _____ ID # _____

Read each item and think if you agree or disagree that the item describes you and your eating habits. Place an "x" in the box that best describes your level of agreement with each statement. If a statement does not apply to you (for example a question asks about what you do at work and you do not have a job), then mark the Strongly Disagree box.

	Strongly Disagree	Disagree	Neutral N/A	Agree	Strongly Agree
1. I stop for a fast food breakfast on the way to work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. My emotions affect what and how much I eat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I use low-fat food products.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I carefully watch the portion sizes of my foods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I buy snacks from vending machines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I choose healthy foods to prevent heart disease.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I eat meatless meals from time to time because I think that is healthier for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I take time to plan meals for the coming week.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. When I buy snack foods, I eat until I have finished the whole package.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I eat for comfort.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I am a snacker.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I count fat grams.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I eat cookies, candy bars, or ice cream in place of dinner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. When I don't plan meals, I eat fast food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. I eat when I'm upset.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I buy meat every time I go to the grocery store.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. I snack more at night.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. I rarely eat breakfast.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I try to limit my intake of red meat (beef and pork).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. When I am in a bad mood, I eat whatever I feel like eating.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. I never know what I am going to eat for supper when I get up in the morning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. I snack two to three times every day.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Fish and poultry are the only meats I eat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. When I am upset, I tend to stop eating.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly Disagree	Disagree	Neutral N/A	Agree	Strongly Agree
25. I like to eat vegetables seasoned with fatty meat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. If I eat a larger than usual lunch, I will skip supper.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. I take a shopping list to the store.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. If I am bored, I will snack more.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. I eat at church socials.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. I am very conscious of how much fat is in the food I eat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. I usually keep cookies in the house.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. I have a serving of meat at every meal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. I associate success with food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. A complete meal includes a meat, a starch, a vegetable, and bread.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. On Sunday, I eat a large meal with my family.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. Instead of planning meals, I choose what is available and what I feel like eating.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. If I eat a larger than usual lunch, I will replace supper with a snack.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. If I am busy, I will eat a snack instead of lunch.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. Sometimes I eat dessert more than once a day.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. I reduce fat in recipes by substituting ingredients and cutting portions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. I have a sweet tooth.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. I sometimes snack even when I am not hungry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. I eat out because it is more convenient than eating at home.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. I hate to cook.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45. I would rather buy take out food and bring it home than cook.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. I have at least three to four servings of vegetables per day.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. To me, cookies are an ideal snack food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. My eating habits are very routine.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49. If I do not feel hungry, I will skip a meal even if it is time to eat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50. When choosing fast food, I pick a place that offers healthy foods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51. I eat at a fast food restaurant at least three times a week.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Meharry Food Frequency Questionnaire

Version 1.4

The following pages are a questionnaire to help us understand your usual dietary intake. Each line of the questionnaire is a food that many people eat. Think about your habits over the past month, and tell us how often you have eaten that particular food. There are boxes to the right of each food and in each box is a possible answer to how often you consume each food. Place an "X" in the box that best describes how often you have eaten each food during the past month. Do not leave any items blank.

How to Answer the Questionnaire	
Never	I did not eat this food at all during the past month
1/mo	I ate this food once during the past month
2-3/mo	I ate this food 2 or 3 times during the past month
1-2/wk	I ate this food 1 or 2 times a week during the past month
3-4/wk	I ate this food 3 or 4 times a week during the past month
5-6/wk	I ate this food 5 or 6 times a week during the past month
1/day	I ate this food once a day during the past month
2/day	I ate this food twice a day during the past month
3+/day	I ate this food three or more times a day during the past month

For example, if the item is white bread, English muffins, white rolls, you need to think about how often you eat white bread as toast, with meals, or in making sandwiches, how often you eat English muffins, and how often you eat white rolls. If you eat white bread 3 times a week and never eat english muffins or white rolls, you would mark the item like this:

81. White bread, English muffins, white rolls	Never	1/mo	2-3/mo	1-2/wk	3X_{wk}	5-6/wk	1/day	2/day	3+/day
---	-------	------	--------	--------	------------------------	--------	-------	-------	--------

If you eat white bread three times a week, english muffins three times a week, and white rolls once a week, then you would eat these foods about once a day and you would mark the item as follows:

81. White bread, English muffins, white rolls	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1X_{day}	2/day	3+/day
---	-------	------	--------	--------	--------	--------	-------------------------	-------	--------

If you have 2 english muffins toasted in the morning, and two slices of white bread with a sandwich at lunch every day, then mark that you eat these foods 3 or more times a day.

81. White bread, English muffins, white rolls	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+X_{ay}
---	-------	------	--------	--------	--------	--------	-------	-------	-------------------------

Give an answer for every food. If you do not know what a particular food item is, then mark Never to show that you do not eat this food.

Before starting the questionnaire, we want to know more about you and your background.

1. How old are you? _____

2. What is your height.

Height: _____ feet _____ inches

3. How much do you weigh in pounds? It is critical for our evaluation that your weight be as accurate as possible.

Weight: _____

4. What gender are you?

_____ Male

_____ Female

5. I would describe myself as:

_____ White

_____ Black

_____ Hispanic

_____ Oriental

_____ Native American

_____ Other

6. What grade are you in? If you are not currently in school, what was the highest grade you completed (check one)?

_____ Primary school (grade 1 through 6)

_____ 7th- 8th grade

_____ 9th - 11th grade

_____ 12th grade, high school graduate

_____ Some college

_____ College graduate

_____ Graduate or professional school

7. Pick the choice that best describes your usual level of physical activity. This includes activity related to your job, your leisure time, and any activities you do for exercise.

_____ I am very inactive

_____ I get a little exercise once or twice a week

_____ I get some exercise 3-4 times a week

_____ I get some exercise about every day

_____ I am very active on a daily basis

How often do you eat each of these foods?

Monthly

Weekly

Daily

MEATS	Monthly			Weekly			Daily		
	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
1. Hamburger									
2. Extra lean hamburger, ground round									
3. Steak, roast beef, pot roast									
4. Meatloaf									
5. Ham, country ham									
6. Pork chops, pork roast									
7. Chitterlings									
8. Pigs feet, pigs ears, pigs tails									
9. Bacon									
10. Pork backs, neck bones, ham hocks									
11. Spare ribs, pork ribs, barbeque ribs									
12. Spam, scrapple									
13. Sausage (links, patties)									
14. Sausage - low fat									
15. Slim Jim/beef jerky									
16. Hot dogs									
17. Hot dogs (low fat, reduced fat)									
18. Sliced Roast beef, sliced ham (lunch meat)									
19. Sliced turkey/chicken (lunch meat)									
20. Bologna, salami, other lunch meats									
21. Low-fat lunch meats (e.g. turkey ham)									
22. Fried chicken, chicken nuggets									
23. Baked/boiled/broiled chicken									
24. Ground turkey									
25. Chicken wing, turkey wings									
26. Baked turkey									
27. Fried fish, fish sticks									
28. Baked/broiled/grilled fish									

How often do you eat each of these foods?

Monthly

Weekly

Daily

29. Fried shrimp, crab, oysters	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
30. Tuna/salmon canned in oil.	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
31. Tuna/salmon canned in water	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
MILK, CHEESE, DAIRY									
32. Cottage Cheese (4% milk fat)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
33. Cottage cheese (low-fat or fat free)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
34. Cheese: Swiss, cheddar, American, etc.	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
35. Cheese: Reduced fat Swiss, American, etc.	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
36. Cheese: Fat free Swiss, American, etc.	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
37. Cheese: Mozzarella	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
38. Cheese: Fat-free mozzarella	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
39. Cream cheese	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
40. Cream cheese (fat free)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
41. Yogurt (regular, low fat)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
42. Yogurt (fat free)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
43. Sour cream	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
44. Sour cream (fat free)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
45. Milk (whole milk, 4%)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
46. Milk (2% milk fat)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
47. Milk (1- 1½ % milk fat)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
48. Milk (skim)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
49. Buttermilk	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
50. Chocolate milk, hot chocolate	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
51. Coffee creamer, half-and-half	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
52. Coffee creamer (fat free)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
53. Ice cream	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
54. Ice milk, frozen yogurt, sherbet	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
55. Eggs (fried, scrambled, boiled etc.)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
56. Egg beaters, egg substitute	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day

How often do you eat each of these foods?

Monthly

Weekly

Daily

	Monthly			Weekly			Daily		
FRUITS									
57. Oranges, grapefruits, lemons, limes	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
58. Apples	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
59. Pears, peaches, apricots, plums	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
60. Grapes	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
51. Bananas	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
62. Melon (cantaloupe, watermelon, etc.)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
63. Berries (blueberries, strawberries, etc.)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
64. Dried fruit (apricots, prunes, etc.)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
65. Raisins	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
66. Fruit juices (e.g., orange, apple, grape)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
VEGETABLES									
67. Peppers (red, green, hot)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
68. Squash (e.g. butternut, zucchini, yellow)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
69. Green beans	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
70. Peas, blackeyed peas	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
71. Corn (canned, frozen, on the cob)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
72. Carrots (cooked and raw)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
73. Cabbage, broccoli, cauliflower, kale	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
74. Mushrooms	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
75. Potatoes (baked, mashed, instant, etc.)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
76. Sweet potatoes, yams	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
77. Onions	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
78. Lettuce, celery	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
79. Greens (collar, mustard, spinach)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
80. Beans: Kidney, pinto, black, northern, etc.	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
81. Okra	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
82. Turnips	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
BREADS AND GRAINS									

How often do you eat each of these foods?

Monthly

Weekly

Daily

	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
83. White bread, English muffins, white rolls									
84. Bagels									
85. Whole grain breads, whole grain rolls									
86. Biscuits									
87. Corn bread, muffins									
88. Sweet breads (nut or banana bread)									
89. Rice									
90. Oat meal, cream of wheat, hot cereal									
91. Grits									
92. Cereal (e.g. corn flakes, fruit loops)									
93. Pancakes, waffles									
94. Spaghetti with sauce, lasagna									
95. Macaroni and cheese									
96. Pasta salad									
97. Noodles, pasta shells									
98. Potato salad									
99. Dressing, stove top stuffing									
SNACKS AND DESSERTS									
100. Potato, corn chips, tortilla chips									
101. Fat free potato and corn chips									
102. Pretzels									
103. Pop corn (in oil or microwave)									
104. Pop corn (lite or air popped)									
105. Cakes, cupcakes, snack cakes									
106. Cookies									
107. Doughnuts, pastry									
108. Pie, snack pies									
109. Chocolate, candy bars									
110. Nuts, peanuts, sunflower seeds									

How often do you eat each of these foods?

Monthly

Weekly

Daily

	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
111. Crackers									
112. Crackers (reduced fat)									
113. Granola, snack bars									
114. Pudding, bread pudding									
115. Pork rinds									
CONDIMENTS, SPREADS									
116. Peanut butter									
117. Jelly or Jams									
118. Syrup, honey									
119. Butter or margarine									
120. Reduced fat margarine									
121. Salad dressing, mayonnaise									
122. Salad dressing, mayonnaise (fat free)									
123. Gravy, cheese sauces									
124. Fat or fat meat added to vegetables									
125. Ketchup, mustard, hot sauce, steak sauce									
BEVERAGES									
126. Sugared soft-drinks (e.g., coke, sprite)									
127. Sugar free soft-drinks (e.g., diet coke)									
128. Ice tea, hot tea, herbal teas									
129. Kool-aid, lemon-aid, punch									
130. Sugar free kool-aid, punch									
131. Beer, wine, wine coolers, mixed drinks									
FAST FOOD, CONVENIENCE FOOD									
132. Hamburger/cheeseburger (regular)									
133. Deluxe burgers (Big Mac, whopper)									
134. French fries/hash browns									
135. Pizza									
136. Mexican food									

How often do you eat each of these foods?

Monthly

Weekly

Daily

137. Chinese food	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
138. Breakfast sandwich (steak biscuit)	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day
139. Submarine sandwich	Never	1/mo	2-3/mo	1-2/wk	3-4/wk	5-6/wk	1/day	2/day	3+/day

Health Status Questionnaire

Name _____ Date _____ ID# _____

1. During the previous year, have you been a patient in a hospital overnight?

☐ Yes
☐ No

If yes, how many times were you hospitalized in the past year? _____

2. Do you have any health problems now that keep you from working at a job or business?

☐ yes
☐ No

3. Do you have any health problems now that keep you from doing house work?

☐ Yes
☐ No

4. Are your activities limited in any way by an impairment or health problem?

☐ Yes
☐ No

5. Because of any impairment or health problem do you need the help of other persons in handling routine needs such as everyday household chores, doing necessary business, shopping, or getting around for other reasons?

☐ Yes
☐ No

6. Because of any impairment or health problem do you need the help of other persons with personal care needs such as eating, bathing, dressing, or getting around the house?

☐ Yes
☐ No

7. During the past month, have you missed any days at a job or school because of illness or injury?

☐ Yes
☐ No

If yes, how many days? _____

8. During the past month, how many times have you seen or talked to a doctor? _____

9. During the past month, how many times have you received medical advice, prescriptions, or test results over the phone from a doctor, nurse, or anyone working with a medical doctor? _____

10. During the past 12 months, about how many times have you seen or talked to a medical doctor or physicians assistant? _____

11. My health is

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Poor

12. During the past year, have you received medical attention for any of the following conditions:

- | | |
|---|---|
| <input type="checkbox"/> Arthritis | <input type="checkbox"/> Kidney problems |
| <input type="checkbox"/> Gout | <input type="checkbox"/> Breast cancer |
| <input type="checkbox"/> Slipped or ruptured disc | <input type="checkbox"/> Hysterectomy |
| <input type="checkbox"/> Skin cancer | <input type="checkbox"/> Prostate cancer |
| <input type="checkbox"/> Other skin problems (rash, itching, allergies) | <input type="checkbox"/> Trouble with menstruation |
| <input type="checkbox"/> Ear infection | <input type="checkbox"/> Ovarian tumor, cyst, or cancer |
| <input type="checkbox"/> Difficulty with vision | <input type="checkbox"/> Heart disease |
| <input type="checkbox"/> An injury to the bones or joints | <input type="checkbox"/> High blood pressure |
| <input type="checkbox"/> Gallstones or gallbladder trouble | <input type="checkbox"/> Stroke |
| <input type="checkbox"/> Liver disease | <input type="checkbox"/> Asthma |
| <input type="checkbox"/> An ulcer | <input type="checkbox"/> Hay fever |
| <input type="checkbox"/> Hernia or rupture | <input type="checkbox"/> Sinus trouble |
| <input type="checkbox"/> Stomach problems (vomiting, nausea) | <input type="checkbox"/> Throat or mouth cancer |
| <input type="checkbox"/> Indigestion | <input type="checkbox"/> Emphysema |
| <input type="checkbox"/> Colitis, Spastic colon | <input type="checkbox"/> Tuberculosis |
| <input type="checkbox"/> Constipation | <input type="checkbox"/> Pneumonia |
| <input type="checkbox"/> Stomach, intestine, or colon cancer | <input type="checkbox"/> Other type of cancer |
| <input type="checkbox"/> Goiter or thyroid problems | |
| <input type="checkbox"/> Diabetes | |
| <input type="checkbox"/> Headaches | |

13. Do you take prescription medication on a daily basis?

- ☐ Yes
- ☐ No

14. Were you injured in any kind of accident during the past year?

- ☐ Yes
- ☐ No

- 15. Is there a particular person or place that you usually go to when you are sick or need advice about your health?**

- ☐ Yes
☐ No

If yes, what kind of place is it?

- ☐ Doctors office or private clinic
☐ Company or school health clinic
☐ Community health clinic
☐ Hospital outpatient clinic
☐ Hospital emergency room
☐ HMO (health maintenance organization)
☐ VA hospital or clinic
☐ Some other place (describe) _____

If yes, who do you see?

- ☐ A physician who is a general practitioner
☐ A physician who is a specialist
☐ A physician's assistant
☐ A nurse
☐ A chiropractor

- 16. Do you have insurance that pays for at least some of the cost of a doctors visit?**

- ☐ Yes
☐ No

- 17. Do you have insurance that pays for at least some of the cost of prescription medicines?**

- ☐ Yes
☐ No

- 18. Sometimes people have difficulty getting medical care when they need it. Was there any time during the past 12 months when you needed medical care or surgery and did not get it?**

- ☐ Yes
☐ No

If yes, what was the reason (mark all that apply)

- ☐ Could not afford it
☐ No insurance
☐ Doctor did not accept my insurance
☐ Could not get an appointment
☐ No doctor was available
☐ Did not have transportation
☐ Hours were not convenient
☐ Too busy

- 19. During the past 12 months, have you delayed seeking medical care because of worries over insurance or cost?**
☐ Yes
☐ No
- 20. During the past 12 months, was there anytime when you needed a prescription medication but could afford it?**
☐ Yes
☐ No
- 21. During the past 12 months, have you done any of the following health prevention activities (check all that apply)?**
☐ Blood pressure checked
☐ Blood sugar checked
☐ Cholesterol checked
☐ Breast self-examination
☐ Mammogram
☐ Skin cancer screening
☐ Prostate exam
☐ Pap smear
☐ Eye examination
☐ Hearing test
☐ Complete physical